Quotations

Urns

1. Lakatos (change in Problem of Inductive Logic – 1968) p 401

" Urn games are poor models of science. — — you may equally well pull out a rabbit, or your hand may be caught in the urn, or the urn may explode or — you may pull out something dramatically unexpected that you cannot possibly understand or even describe".

Corroborability

2. Popper L Sc. D. p. 270

& Degree of corroborability $c(q) = 1 - p(q)$
10. equal to content or $1/p(q)$.

L Sc. II. by 400

Degree of confirmation of h by e / of corroboration

$$C(h, e) \Rightarrow \frac{p(e/h) - p(e)}{p(e/h) + p(e) - p(e \& h)}$$

Corroboration

$$\rightarrow \frac{1 - p(e)}{1 + p(e)}$$

if h explains e and $p(h) = 0$, universal laws.

Realism v. instrumentalism

3. Popper Truth, Rationality, the Growth of Knowledge p. 265

" We ought not to cease at theories which are mere instruments for the ~~explanation~~ explanation of facts but we ~~should try~~ ought to try to find genuine explanatory theories: we should make ~~as many guesses as~~ at the structure of the world"

Popper. Truth, Rationality, the Growth of Knowledge p. 246

novel predictions → belief in truth

"We have no reason to regard the new theory as better than the old theory — to believe that it is nearer to the truth — until we have deduced from the new theory new predictions and until we have found that these new predictions are successful."

modified empiricism

Popper. The Aim of Science p. 196

"I do not think that we can ever describe, by our universal laws, or alternate causes of the world, I do not think that we may seek to probe deeper and deeper into the structure of our world, or, as we might say, into properties of the world that are more and more essential, or of greater and greater depth" — "our modified empiricism"

Popper conjectures & Refutations p 390

Severity & tests

degree severity of a test e, given a

$$\text{or} \quad S(e,a) = \frac{1 - p(e/a)}{1 + p(e,a)}$$

Popper ~~Aim of Science p. 203~~

metaphysical realism, the unknowable, the convergence ultimate truth

Popper the aim of science p. 203.

"The task of science ... can hardly be understood if we are not realists — that is something for us to discover, and something to discuss critically. ... (but) unless fallibilistic we do not have to presuppose metaphysical realism ... which can serve us only as a guide in our encouragement, or hope, but no assurance of any kind. — — — "the most likely false assumption about the true structural theory of the world (if any) is discernible by man, or expressible in human language".

Realism = Probability

Popper "I maintain the opposite (after Carnap) view (Johnson) that physically real what is 'Probable' and able to reach high degrees ~~of~~ probability — degrees which can be assigned to them — degrees of Probability".

Conjectural rationality

Lakatos History of Science as its Rational reconstruction p 117

"In the light of better rational reconstructions of science one can always construct more of actual past science as rational".

"Reminiscences from Early Quantum Mechanics of Two-Electron Systems". E.A. Hylleraas
R.M.P. 35 (1963) p. 421–431.

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very exponential value for ground state of He was 24.46 ev.

"The end result of my calculations was (a ground-state energy of 24.35 ev. which was) greatly admired and thought of as almost a proof of the validity of wave-mechanics, (also) in the strict numerical sense. Previous very calculations had ranged from 28 ev (Bohr) to 20 ev (Unsöld) — unrefined calculation by Hylleraas in 1927. Made desperate efforts even on spherocapic scale.

Later improvements by Chandrasekhar & Herzberg and later by Kinoshita and Pekeris

cf Pekeris PR 126 1470 (1962)
Kinoshita PR 115 366 (1959)

Complete series theoretical value for ground state of He as 198310.77 cm^{-1} ± 0.4 (± 2 ppm)
Esp. value, Herzberg (1958) 198310.8 ± 0.15 cm^{-1}
(error about 1 ppm.)
For Kinoshita P.R. even new value as well as Q.E.D. corrections.